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Children of Injection Drug Users: Impact of Parental HIV Status, AIDS, and Depression

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ABSTRACT *We investigated the association between parental factors (including infection with human immunodeficiency virus [HIV], acquired immunodeficiency syndrome [AIDS] diagnosis, parental medical illness, and depression) and children's behavioral and emotional problems among children of injection drug users (IDUs). IDUs were recruited through community outreach. The sample included 73 parents of 73 children, aged 4 to 12 years. Parental depression (odds ratio [OR] = 4.61) and medical illness (OR = 4.70) were found to be significantly associated with internalizing (depressive and anxiety-related symptoms), but not with externalizing (aggressive and disruptive behaviors) symptoms in the children of IDUs. The clinical implications are that children of IDUs are known to be at high risk for psychiatric symptoms and disorders; these data suggest that children of depressed and/or medically ill IDU parents may be at even higher risk of internalizing symptoms (depression and anxiety symptoms) than children of IDUs who do not suffer from these conditions.*

KEYWORDS *AIDS, Children of Drug-Using Parents, HIV, IDU (Injection Drug Users), Impaired Parent.*

The impact of parental human immunodeficiency virus (HIV) infection on children has received limited attention in the literature. Injection drug users (IDUs) are at high risk for HIV infection, acquired immunodeficiency syndrome (AIDS), and certain medical conditions. Thus, their children are affected by parental drug use and often by parental HIV infection as well. Even though many do not live with their children, in a sample we recently surveyed, 21% and 58% of children of IDU fathers and mothers, respectively, lived with their IDU parents.[1]

The extant literature, mostly anecdotal, suggests that children of HIV-positive parents suffer from emotional distress and depression as they anticipate parental loss.[2,3] Little attention has been given to the impact of the deterioration of parental health status on the emotional welfare of children of HIV-positive parents. This was the main focus of this study. Since most American children affected by parental

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HIV/AIDS live in poverty and are affected by multiple and severe parental problems,[3,4] it is difficult to separate the impact of parental AIDS from the impact of adverse economic and familial conditions and from the impact of parental use of illicit drugs. By comparing children of HIV-positive IDUs to children of HIV-negative IDUs, both living in similarly adverse conditions, we were able to estimate the impact of parental HIV/AIDS apart from the confounding effects of adverse environmental and familial conditions.

Research on children of medically ill parents suggests that parental medical illness has a detrimental impact on children's adjustment. The areas of child psychosocial adjustment affected by parental illness vary substantially across studies.[5,6] The type and stage of parental illness, as well as the child's age, may account for the variation in study results. Nevertheless, it has been suggested that "parental medical illness [cancer in most studies] has an adverse impact on children's adjustment, most often in the form of internalizing problems or negative affect."[7(p.202)] For example, Siegel et al.[8] reported that children, aged 7 to 16 years, of parents with a terminal illness reported more symptoms of depression, anxiety, and lower self-esteem than children in a comparison group. Armsden and Lewis[9] do not concur: They found that children (aged 6–12 years) of mothers with cancer (N = 13) scored better than average on behavioral adjustment, but had lower self-esteem, than controls. Given the size of their sample, these findings should be viewed cautiously.

Since the clinical status of HIV-infected parents may range from asymptomatic to severely ill and the severity of parental illness may have a differential impact on children, we estimated the severity of parental illness in three ways. First, we considered the CD4 count, which is indicative of how severely the immune system has been affected by the HIV virus. Second, we ascertained whether parents were suffering from medical conditions common among those with HIV. Third, we used the Instrumental Activities of Daily Living Scales (see Methods) to assess the ability of parents to perform selected activities of daily living. Typically, severe medical illness interferes with the ability to perform these activities.

Since depression is a common cooccurring psychiatric disorder among opioid users,[10,11] and children of depressed parents are known to be at risk for depression,[12–14] we considered the role of parental depression. As recently suggested by Nunes et al.,[15] we postulated that the risk of depressive symptoms among the children of IDUs may stem, at least in part, from parental depression.

Although there is extensive literature on children of parents who abuse substances, this literature is predominantly based on children of alcoholics.[16–29] To the best of our knowledge, there are no published reports that focus specifically on children of IDUs in community settings. A few investigators have reported on children of IDUs ascertained in clinical settings (i.e., while parents were undergoing methadone treatment). These studies are considered here.

De Cubas and Field[30] studied 20 children of mothers undergoing methadone treatment and 20 controls. Compared to controls (children seen in a developmental evaluation clinic), the children in the study group had significantly higher scores on both the internalizing (indicative of depression and anxiety symptoms) and externalizing (indicative of disruptive and aggressive behavior) scales of the CBCL (Child Behavioral Checklist).[31] No significant differences were found on cognitive tests. Wilens et al.[32] studied 44 children of opioid users, aged 4 to 18 years, from 27 families. The children of opioid users had significantly higher scores on both the internalizing and externalizing scales of the CBCL compared with medically referred children, but not compared with psychiatrically disordered children.

Nunes et al.[15] examined the impact of parental psychopathology on children's emotional and behavioral problems. Their sample consisted of 114 children, aged 6 to 17 years, of 69 parents in methadone maintenance. They reported that children of opioid users, and particularly sons of depressed opioid-using parents, had a higher point prevalence of conduct disorders than historical controls and poor social and intellectual functioning. Direct interviewing of children sets the study of Nunes at al.[15] apart from prior studies of children of parents undergoing methadone treatment. However, their study did not consider parental HIV status and physical health. Since HIV infection and other medical conditions are common among opioid users, especially among IDUs, these factors merit more attention.

The present investigation considered associations of parental HIV/AIDS and health status, including depressive symptoms, with emotional and behavioral problems among children of IDUs. We defined parents as IDUs if they reported injection drug use at any time in the 10 years preceding their enrollment in the ALIVE study,[33] as explained in the Methods section. We refer to them as IDU parents throughout this article. Based on the literature reviewed above, we expected children of HIV-seropositive, AIDS-afflicted, medically ill, and depressed parents to be at higher risk for internalizing disorders than children of parents who were free of these conditions.

HIV infection and AIDS are stigmatizing conditions. HIV infected parents often do not disclose their HIV status to their children.[34,35] Parental disclosure was not ascertained in this study. Therefore, we were not able to study the role of disclosure, as a factor that might mediate the impact of parental HIV/AIDS on affected children. This study adds two new dimensions not considered by the studies reviewed above. First, while the studies reviewed above recruited parents in treatment settings, the parents in this study were recruited through community and street outreach. Thus, our sample is less likely to be biased toward the overrepresentation of psychopathology than would be expected in clinic samples.[36] Second, we focused on factors that were not previously considered, that is, the role of parental HIV status, AIDS diagnosis, and parental medical conditions.

METHODS

Subjects

Data for this study were collected in Baltimore, Maryland, in 1997–1998. Participating parents were current and former IDUs. Participants were recruited from the SAIL (Social Affiliations in Injectors Lives) study, a subsample of the ALIVE study.

Since enrollment in the ALIVE study has been described in detail elsewhere,[33] we briefly summarize recruitment procedures. Most ALIVE participants were recruited in East Baltimore, an impoverished predominantly African American inner-city area. Study staff asked agencies that serve IDUs to distribute brochures that described the study. In addition, staff distributed brochures in local public housing projects and other public places known to be frequented by IDUs. Many were recruited through word of mouth as participating IDUs told friends in their drug-using social network about the study.

Criteria for participation included injection drug use in the prior 10 years and age 18 years or older.[33] Most ALIVE study participants reported at baseline that they injected heroin alone or combined with cocaine. Because the sampling scheme for the ALIVE study was communitywide recruitment of IDUs for an HIV study,

participants were not selected for having or not having children or for the presence of psychopathology. In this sense, the ALIVE sample represents an unselected sample. Because data on a sampling frame are unavailable for IDUs, it is difficult to comment about representativeness per se; however, the broad recruitment scheme used in the ALIVE study[33] reduces concern for sampling bias associated with clinics and drug treatment programs.

A subsample of ALIVE participants was recruited to participate in the SAIL study, a longitudinal study of psychosocial functioning among HIV-positive and HIV-negative IDUs.[37] For ALIVE and SAIL visits, trained interviewers conducted face-to-face interviews every 6 months that lasted approximately 1 hour and 15 minutes. Both studies were approved by the Johns Hopkins School of Public Health Committee on Human Research. All participants volunteered and signed informed consent for participation in the SAIL and ALIVE studies and were compensated $15 for each completed interview.

There were 671 individuals interviewed for the SAIL study when this investigation began. All were surveyed about their children. Of these, 192 reported having at least 1 child aged 4 to 12 years and were considered eligible for participation in this study. Children older than 12 years were excluded because of concern about possible drug use among them, which might have confounded the findings of this study. There were 87 who agreed to participate in the study, and 73 completed all the research interviews and were tested for HIV. When parents had more than 1 child in the range of 4 to 12 years, 1 child was randomly selected for participation in the study. The 73 respondents included 54 biological mothers, 6 biological fathers, and 13 substitute parents (stepparents and relative caregivers).

Measures and Procedures

Unless otherwise noted, all instruments were given to participants during a single interview that took place in 1997–1998. During this interview, the following instruments were used: CBCL, Instrumental Activities of Daily Living Scales (IADLs), and the Center for Epidemiological Studies Depression Scale (CES-D). In addition, information regarding current drug use was also gathered during this interview.

HIV Serostatus Recent reports have questioned the validity of self-reported HIV antibody test results.[38,39] In this study, parental HIV status was determined using commercial enzyme-linked immunoabsorbent assay and confirmed with Western blot. T-cell subset studies were performed using flow cytometry. HIV serostatus and CD4 counts were ascertained at baseline and every 6 months.[33] The most recent HIV test results preceding the CBCL interview were used in the present study.

AIDS Criteria Those HIV-positive individuals with CD4 counts at or below 200 cells/μL were considered to have a diagnosis of AIDS. Such counts are indicative of a compromised immune system and are often associated with opportunistic infections that may endanger the life of HIV-infected individuals. Individuals with CD4 counts at or below 200 cells/μL require intensive medical treatment and are often hospitalized for the treatment of opportunistic infections.

Parental Medical Illness We used information regarding certain parental medical conditions (diabetes, cirrhosis, hepatitis, sepsis, pneumonia, pulmonary tuberculosis, cancer, and endocarditis) as indicators of parental health status. Every 6 months, the ALIVE study updates the medical history of participants, as described

in detail elsewhere.[33] The most recent update preceding the CBCL interview was used to prepare this report.

Instrumental Activities of Daily Living Scales The IADLs are scales designed to measure activities of daily living indicative of physical disability. They identify high and low levels of disability. There are numerous versions in use.[40] We included activities of daily living based on a scale developed by Lawton and Brody.[41] Impaired physical functioning was considered present whenever subjects reported difficulties performing any of five instrumental activities (housework/housecleaning, shopping for food, cooking/preparing food, doing laundry, using public transportation). Questions about each of the five activities were answered in a yes/no format.

Current Drug Use Current drug use was ascertained through self-report and was measured by the item, "Are you currently using any drugs (for example, cocaine, heroin, or crack), not including prescription medicines?" The relevant literature suggests that self-report is an adequate measure of drug use.[42–44] Biological tests (urine analysis) aimed at confirming the validity of self-report suggest that reports of drug use are valid enough to provide descriptions of drug use.[43]

Child Behavior Checklist One method for screening children at risk for psychopathology is the CBCL.[31] The CBCL is a well-standardized, widely used instrument for the assessment of emotional and behavioral problems in children in both clinical and community settings. It has sound psychometric properties.[31] Furthermore, it has excellent convergence with more intensive psychiatric interviews.[45,46] Thus, the CBCL is a promising screening tool to detect children of IDUs who are at high risk for dysfunction and psychopathology.

In addition to an overall psychopathology score, the CBCL provides separate scores for two broadband scales, the internalizing and externalizing syndromes. The externalizing syndrome largely overlaps with the DSM-IV disruptive behavior disorders.[47] The internalizing syndrome largely overlaps with depressive and anxiety disorders. A computer-based program generates normalized T scores for all scales. Based on their work with children at high risk for psychopathology, Wilens et al.[32] have suggested that T scores greater than 60 should be considered indicative of high risk for psychopathology. Thus, we defined the group with T scores greater than 60 as at risk for psychopathology. Since 60 is only one standard deviation above the mean, it is likely to be a sensitive measure of psychopathology, as previously shown in diverse groups of high-risk children.[32]

Center for Epidemiological Studies Depression Scale The CES-D is a widely used, 20-item depression scale developed to identify depression in the general population.[48] Each item is scored on a Likert scale that ranges from 0 to 3. Total depression scores range from 0 to 60. Sound psychometric properties and acceptable correlations with clinical ratings of severity of depression and with other scales have been reported. A cutoff score of 16 has been considered indicative of depression.[40]

Statistical Analysis

Bivariate analysis was conducted to determine associations between parental factors and the three dependent variables (CBCL internalizing, CBCL externalizing, and CBCL total T scores in the at-risk range, i.e., above 60). The parental factors considered were age, gender, education, current employment, HIV status, CD4 count,

presence/absence of one or more specific medical illnesses (diabetes, cirrhosis, hepatitis, sepsis, pneumonia, pulmonary tuberculosis, cancer, and endocarditis), IADLs (see Measures and Procedures, above), parental CES-D score (used to assess the presence of depressive symptoms), and the presence/absence of any current illicit drug use. Parental and children's ages were dichotomized into groups containing individuals above and below the median age. Unadjusted odds ratios (ORs) and corresponding 95% confidence intervals (CIs) were obtained.

Logistic regression models were used to model the probability of a child with an IDU parent having internalizing, externalizing, and total CBCL T scores in the at-risk range (T scores above 60) as a function of child's and parent's age and gender, parental education, and current parental employment, as well as all the health and drug use variables. Forward stepwise logistic regression models were implemented for selecting a final regression model. All variables with an unadjusted $P < .15$ were initially considered and entered one at a time in the model based on a $P < .15$ criterion (SAS software default criteria). At each step, the significance of the additional variable was evaluated using a likelihood ratio test by comparing the current model to the model selected in the previous step. Models were conducted separately for the internalizing, externalizing, and total T scores in the at-risk range. We did not force variables into the model. Doing so with a small sample increases the likelihood of collinearity, rendering the model unstable. In addition, there was very little power to detect multiple adjusted effects.

RESULTS

Demographic and health characteristics of IDU parents in the sample are shown in Table 1. The mean age of the parents was 37.6 years (SD = 6.2, range 26–55). Most children (90.4%) and parents (93.2%) were African American. There were 40 parents (54.8%) who were HIV seronegative, and 33 (45.2%) were seropositive. The current use of any illicit drugs was reported by 32 parents (43.8%). Data regarding the use of specific drugs were available for 31 of the 32 current drug users. Cocaine and heroin were the two most commonly used drugs, and 28 subjects reported the current use of heroin and/or cocaine, often in combination with other illicit substances (data not shown).

The children included 42 boys and 31 girls. The mean age of the children was 9.0 years (SD = 2.0, range 4–12). Children's CBCL scores indicate that 23.3%, 31.5%, and 26.0% fell in the at-risk range for internalizing, externalizing, and total T scores, respectively (Table 2).

Associations of parental factors and children's internalizing, externalizing, and total T scores are reported in Table 3. None of the demographic factors were significantly associated with psychopathological syndromes in the children of IDUs (data not shown). As shown in Table 3, among the health status variables, parental depression (OR = 4.58, 95% CI = 1.45–14.50) and medical illness (OR = 4.67, 95% CI = 1.21–18.05) were significantly associated with internalizing symptoms in the children of IDUs.

The final model (Table 4) indicates that two parental factors, parental depression (OR = 4.61, 95% CI = 1.39–15.33, $P = .013$) and parental medical illnesses (OR = 4.70, 95% CI = 1.15–19.17, $P = .031$), were independently associated with the internalizing syndrome among children of IDUs in our sample after considering demographic factors, the indicators of parental health status shown in Table 3, and the current parental use of illicit drugs.

TABLE 1. Sociodemographic, health characteristics, and drug use status of injecting drug user parents (N = 73)

Characteristic	n (%)
Demographics	
Ethnicity	
African American	68 (93.2)
Other	5 (6.8)
Age*	
≥38	33 (45.2)
<38	40 (54.8)
Gender	
Female	45 (61.6)
Male	28 (38.4)
Education	
<12th grade	36 (49.3)
≥12th grade	37 (50.7)
Currently employed	
No	52 (71.2)
Yes	21 (28.8)
Health status	
HIV status	
Positive	33 (45.2)
Negative	40 (54.8)
CD4 count	
CD4 < 200 cells/μL	11 (15.1)
CD4 ≥ 200 cells/μL	62 (84.9)
Medical illness(es)	
Any	42 (57.5)
None	31 (42.5)
IADL†	
Any difficulty	8 (11.0)
No difficulty	65 (89.0)
CES-D score‡	
≥16	27 (37.0)
<16	46 (63.0)
Drug use	
Any current illicit drug use	
No	41 (56.2)
Yes	32 (43.8)

*The mean age of the parents was 37.6 years (SD = 6.2, range 26–55).

†Instrumental Activity of Daily Living, indicator of physical disability as manifested by difficulties in performing activities of daily living.

‡Center for Epidemiological Studies Depression Scale; a score of 16 or higher is indicative of depression.

TABLE 2. Center for Epidemiological Studies Depression Scale internalizing, externalizing, and total T scores among children of injecting drug user parents (N = 73)

Range	At-risk range,* n (%)	Normal range, n (%)
Internalizing disorders	17 (23.3)	56 (76.7)
Externalizing disorders	23 (31.5)	50 (68.5)
Total T score	19 (26.0)	54 (74.0)

*The at-risk range includes T scores equal to or greater than 60; normal range includes T scores below 60.

A second model was created by entering the same variables (see data analysis) except parental medical illness. In the final model thus obtained (results not shown), two parental factors (i.e., parental depression and parental AIDS) were associated with internalizing symptoms in the children. This association was statistically significant for parental depression (OR = 5.12, 95% CI = 1.53–17.2, $P = .008$) and ap-

TABLE 3. Unadjusted odds ratios (ORs) for internalizing, externalizing, and total psychopathology T scores among children of injecting drug user parents (N = 73)

	Internalizing			Externalizing			Total		
	OR	95% CI	*P*	OR	95% CI	*P*	OR	95% CI	*P*
Health status									
HIV status									
Positive	1.10	0.37–3.27	1.0	1.17	0.43–3.14	.80	1.13	0.91–13.31	1.0
Negative	1.0			1.0			1.0		
HIV/CD4 status*									
HIV+/CD4 < 200 cells/μL	3.47	0.91–13.31	.11	3.18	0.86–11.79	.09	2.86	0.76–10.78	.14
HIV+/CD4 > 200 cells/μL	1.0			1.0			1.0		
Medical illness(es)†									
Any	4.67	1.21–18.05	.03	0.56	0.21–1.52	.31	1.87	0.62–5.64	.30
None	1.0			1.0			1.0		
IADL‡									
Any difficulty	2.19	0.47–10.29	.38	0.70	0.13–3.76	1.0	1.84	0.39–8.56	.42
None	1.0			1.0			1.0		
Parental CESD score§									
≥16	4.58	1.45–14.50	.01	1.14	0.41–3.16	.80	3.27	1.11–9.64	.05
<16	1.0			1.0			1.0		
Drug use									
Any current illicit drug use									
No	1.15	0.38–3.46	1.0	0.79	0.29–2.13	.80	1.10	0.38–3.16	1.0
Yes	1.0			1.0			1.0		

*These cases met AIDS criteria as defined in the Methods section.

†Medical illnesses included are diabetes, cirrhosis, hepatitis, sepsis, pneumonia, pulmonary tuberculosis, cancer, and endocarditis.

‡Instrumental Activities of Daily Living.

§Center for Epidemiological Studies Depression Scale; a score of 16 or higher is indicative of depression.

TABLE 4. Final multiple regression models: Adjusted odds ratios (ORs) for internalizing and total psychopathology T scores among children of injecting drug user parents

	Internalizing*			Total†		
Characteristic	OR	95% CI	*P*	OR	95% CI	*P*
Parental CES-D score						
CES-D ≥16	4.61	1.39–15.33	.013	3.27	1.11–9.64	.032
CES-D <16	1.0					
Parental medical illness‡						
Any	4.70	1.15–19.17	.031	—	—	—
None	1.0					

Note: None of the variables entered were significant in the final model for externalizing disorders.

*–2logL = 66.58.

†–2logL = 79.01.

‡Medical illnesses include history of diabetes, cirrhosis, hepatitis, sepsis, pneumonia, pulmonary tuberculosis, cancer, and endocarditis.

proached conventional levels of statistical significance for AIDS (OR = 4.23, 95% CI = 0.97–18.5, $P = .055$).

DISCUSSION

This study revealed that parental depression and the medical illnesses we considered were associated with internalizing symptoms among children of IDUs. As expected, parental depression increased the odds of internalizing symptoms among the children in the study; it did not increase the odds of externalizing symptoms. In contrast, Nunes et al.[15] have recently reported an association of parental depression and externalizing disorders among children of opioid users. While their sample included children aged 6 to 17 years, our sample included children aged 4 to 12 years. Externalizing symptoms might become evident at a later age, thus explaining the difference between our findings and those of Nunes et al.[15] Developmental psychopathologists have indicated that a substantial number of children begin showing externalizing behaviors as they approach adolescence in the absence of a childhood history of oppositional behavior.[49,50]

The presence of one or more of several parental medical conditions (history of diabetes, cirrhosis, hepatitis, sepsis, pneumonia, pulmonary tuberculosis, cancer, or endocarditis) increased the odds of internalizing symptoms among the children in our study (OR = 4.67, $P = .025$). These findings are consistent with findings reported in the literature that concerning children of parents with cancer.[7] These medical conditions include some that are likely to be secondary to HIV infection (e.g., pulmonary tuberculosis) and others that are likely to stem from bacterial infections that are relatively common among IDUs (e.g., endocarditis).

Contrary to expectations, parental HIV status was not associated with internalizing symptoms among the children we studied. Given the absence of information regarding parental disclosure of HIV status, it is not possible to know whether parental HIV status was truly unrelated to child psychopathology. Alternatively, our negative findings may stem from lack of parental disclosure of their HIV status.

When we repeated the regression model excluding parental medical illnesses (as explained in the Results section), two parental factors (i.e., parental depression and parental AIDS) were associated with internalizing symptoms in the children. This association was statistically significant for parental depression and approached conventional levels of statistical significance for AIDS (see Results, above). This is an intriguing finding, but given the small sample size, the wide confidence interval, and the failure to reach conventional levels of statistical significance, it should be seen as tentative.

There are several limitations to this study. First, there is a lack of systematic information regarding possible sample bias. Not all eligible parents agreed to participate in this study, and we do not know how study participants differed from those refusing to participate. Thus, parents self-selected from several sources. The extent to which they are representative of IDU parents in their communities is not known. Second, since parental disclosure of HIV status was not ascertained, we cannot assess its impact on the affected children. The literature suggests that HIV-positive parents often do not disclose their HIV status to their preadolescent children.[51] Third, absence of information regarding parental drug treatment status is an important limitation of our work. This potential confounder should be explored in future research. Finally, since this is a cross-sectional study, the findings reported here should not be interpreted as causal pathways, but as associations that may be used in future studies as causal hypotheses. For example, we do not know whether children's internalizing symptoms preceded the onset of parental medical illnesses or of parental depression. Nevertheless, the literature on children of depressed parents suggests that parental depression is likely to precede the child's depression.[14]

A noteworthy strength of this study is the use of a community sample of IDUs. Street-recruited IDUs are likely to report more adequate social functioning, fewer drug-related legal problems, and lower rates of depressive disorders than those IDUs in treatment.[36] Each one of these differences between community and clinical samples may affect children differently.

Future studies should include a detailed exploration of disclosure of parental HIV status to children through interviews with parents.[52] Research interviews with children regarding parental disclosure raise difficult ethical issues as questions about disclosure may suggest the presence of parental HIV infection. A longitudinal follow-up study of a larger sample of children of HIV-positive and HIV-negative IDU parents would clarify whether the associations reported here are causal. Furthermore, it could form the basis for prevention programs aimed at ameliorating the detrimental impact of parental dug use on children.

CLINICAL IMPLICATIONS

In this study, children aged 4 to 12 years of depressed and medically ill IDU parents were found to have more internalizing symptoms, and consequently to be at higher risk for internalizing disorders, than children of IDU parents free of these conditions. Recent work by other investigators suggests that children of parents who are both depressed and opioid dependent are particularly vulnerable.[15] Thus, the cooccurrence of parental depression and injection drug use should raise concern about the impact on children above and beyond the impact of parental injection drug use.

Parental medical illness had a similar impact on these children (i.e., an increased prevalence of internalizing symptoms). Thus, in the clinical situation, it is

important to consider not only the HIV status of an IDU parent, but also the parent's medical condition and its impact on affected children.

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